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| LIU & LIU 444 S. FLOWER STREET, SUITE 1750 LOS ANGELES, CA 90071 | | | EXAMINER NGUYEN, LAUREN | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/540,104 | Applicant(s) LEENHOUTS ET AL. | |
| | Examiner Lauren Nguyen | Art Unit 2871 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2007.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Receipt is acknowledged of applicant's amendment filed on 05/15/2007.

Claims 9-20 were added. Thus, claims 1-20 are pending for examination.

Response to Arguments

1. Applicant's arguments with respect to **claims 1-20** have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1 and 3-7** are rejected under 35 U.S.C. 102(b) as being anticipated by **Kubo et al.** (U.S. Patent Number 6,124,919).

4. With respect to **claim 1**, as shown in figures 1, 3 and 7(a)-7(b), **Kubo et al.** discloses a normally white super-twist nematic liquid crystal display device for multiplex operation (see at least column 6, lines 52-53), comprising:

- a liquid crystal cell essentially comprising a liquid crystal layer (7), being sandwiched between a front (5) and a rear substrate (1),
- an at least partly reflective film (2), arranged in proximity to said rear substrate, and
- a front optical stack (10, 11, and 15), arranged on a viewer's side of the front substrate (figure 3), the stack comprising one or more optical films, wherein the front optical stack consists essentially of a polarizer (11) and an optical light scattering film (15).

5. With respect to **claims 3-7**, as shown in figures 1, 3 and 7(a)-7(b), **Kubo et al.** discloses:

- (**claim 3**) said at least partly reflective film (2) is a reflective film enabling reflective operation of the display device (see at least column 10, lines 43-48).
- (**claim 4**) said at least partly reflective film (2) is a transfective film enabling transfective operation of the display device (see at least column 10, lines 48-51).
- (**claim 5**) a rear optical stack (9 and 14), arranged on a back side of the liquid crystal layer, the stack comprising one or more optical films (9 and 14).
- (**claim 6**) said rear optical stack comprises a rear polarizer (14) and a compensation film (9), arranged between the rear polarizer and the liquid crystal cell (figures 1 and 3).
- (**claim 7**) said at least partly reflective film (2) is arranged as an in-cell internal reflector between said front (5) and rear substrate (1).

6. **Claims 1, 3, 8-11, 13, and 18-19** are rejected under 35 U.S.C. 102(b) as being anticipated by **Akiyama et al. (US 6,577,360)**.

7. With respect to **claim 1**, **Akiyama et al.** (figures 3 and 9) discloses a normally white super-twist nematic liquid crystal display device for multiplex operation, comprising:

- a liquid crystal cell (11) essentially comprising a liquid crystal layer, being sandwiched between a front and a rear substrate (1 and 2, figure 3);
- an at least partly reflective film (15), arranged in proximity to said rear substrate; and
- a front optical stack (12 and 17), arranged on a viewer's side of the front substrate, the stack comprising one or more optical films, wherein the front optical stack consists essentially of a polarizer (12) and an optional optical light scattering film (17).

8. With respect to **claim 3**, as applied to **claim 1** above, **Akiyama et al.** (figures 3 and 9) discloses said at least partly reflective film is a reflective film (15) enabling reflective operation of the display device.
9. With respect to **claim 8**, as applied to **claim 1** above, **Akiyama et al.** (figures 3 and 9) discloses said at least partly reflective film (15) is arranged in said rear optical stack (14, 15, and 16), essentially adjacent to said rear substrate.
10. With respect to **claim 9**, as applied to **claim 1** above, **Akiyama et al.** (figures 3 and 9) discloses the front optical stack includes only the polarizer (12) and the optical light scattering film (17, figure 9).
11. With respect to **claim 10**, as applied to **claim 1** above, **Akiyama et al.** (figures 3 and 9) discloses the front optical stack does not include a compensation film (figure 9).
12. With respect to **claim 11**, **Akiyama et al.** (figures 3 and 9) discloses a normally white super-twist nematic liquid crystal display device for multiplex operation, comprising:
- a first substrate and a second substrate (1 and 2, figure 3);
 - a liquid crystal layer (3) disposed between the first and second substrate;
 - an at least partly reflective film (15) supported by the second substrate; and
 - a first optical stack (12 and 17) supported by the first substrate, comprising a polarizer (12) and an optical light scattering film (17), without a compensation film.
13. With respect to **claim 13**, as applied to **claim 11** above, **Akiyama et al.** (figures 3 and 9) discloses said at least partly reflective film is a reflective film (15) enabling reflective operation of the display device.

Art Unit: 2871

14. With respect to **claim 18**, as applied to **claim 11** above, **Akiyama et al.** (figures 3 and 9) discloses said at least partly reflective film (15) is supported by the second substrate (2) on a side facing away from the first substrate (1).

15. With respect to **claim 19**, as applied to **claim 1** above, **Akiyama et al.** (figures 3 and 9) discloses the front optical stack includes only the polarizer (12) and the optical light scattering film (17, figure 9).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kubo et al. (U.S. Patent Number 6,124,919)**.

18. With respect to **claim 2**, **Kubo et al.** discloses the limitations as shown in the rejection of **claim 1** above. **Kubo et al.** does not disclose the retardation of said liquid crystal layer is in the range of 500-750 nm.

However, **Kubo et al.**, in at least column 6, line 33-34, figures 1, 3, and 7(a)-7(b), discloses the retardation of said liquid crystal layer is set to 700-950 nm. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the retardation of the liquid crystal layer with the teaching of **Kubo et al.** because such modification would provide a display with high contrast and therefore, the choices of optimum range can be obtained to achieve the highest contrast (see at least column 6, lines 38-39).

Art Unit: 2871

19. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kubo et al. (U.S.**

Patent Number 6,124,919) in view of **Saiki et al. (U.S. Patent Number 6,697,132).**

20. With respect to **claim 8**, **Kubo et al.** discloses the limitations as shown in the rejection of **claim 1** above. **Kubo et al.** does not disclose said at least partly reflective film is arranged in said rear optical stack, essentially adjacent to said rear substrate.

However, **Saiki et al.**, in at least column 5 and 7, lines 9-19 and 54-58, respectively, and figure 3, discloses said at least partly reflective film (23) is arranged in said rear optical stack (21), essentially adjacent to said rear substrate.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the partly reflective film of **Kubo et al.** with the teaching of **Saiki et al.** because such modification would be advantageous over adhering or peeling the optical stack to and off the liquid crystal cell (see at least columns 2 and 7, lines 42-50 and 35-38, respectively).

21. **Claims 2, 4-7, 12, 14-17, and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Akiyama et al.** in view of **Kubo et al.**

22. With respect to **claims 2 and 12**, **Akiyama et al.** discloses the limitations as shown in the rejection of **claims 1 and 11** above. **Akiyama et al.** does not disclose the retardation of said liquid crystal layer is in the range of 500-750 nm.

23. However, **Kubo et al.**, in at least column 6, line 33-34, figures 1, 3, and 7(a)-7(b), discloses the retardation of said liquid crystal layer is set to 700-950 nm. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the retardation of the liquid crystal layer with the teaching of **Kubo et al.** because such modification would provide a display with high

Art Unit: 2871

contrast and therefore, the choices of optimum range can be obtained to achieve the highest contrast (see at least column 6, lines 38-39).

24. With respect to **claim 4**, as applied to **claim 1** above, **Akiyama et al.** discloses the limitations as shown in the rejection of **claim 1** above. **Akiyama et al.** does not disclose said at least partly reflective film is a transflective film enabling transflective operation of the display device.

Kubo et al. (figures 1, 3 and 7(a)-7(b); in at least column 10, lines 43-51) discloses said at least partly reflective film (2) is a transflective film enabling transflective operation of the display device. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light reflecting film of **Akiyama et al.** with the transflective film of **Kubo et al.** because such modification would enhance the brightness and obtain the image display having the high contrast.

25. With respect to **claim 5**, as applied to **claim 4** above, **Akiyama et al.** (figures 3 and 9) discloses a rear optical stack, arranged on a back side of the liquid crystal layer, the stack comprising one or more optical films (14-16).

26. With respect to **claim 6**, as applied to **claim 5** above, **Akiyama et al.** (figures 3 and 9) discloses said rear optical stack comprises a rear polarizer (14). **Akiyama et al.** does not disclose a compensation film being arranged between the rear polarizer and the liquid crystal cell.

Kubo et al. (in at least column 2, lines 18-23, column 7, lines 60-64, figures 1, 3 and 7(a)-7(b)) teaches a compensation film (9) being arranged between the rear polarizer and the liquid crystal cell (14 and 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the rear optical stack of **Akiyama et al.** with the compensation

film of **Kubo et al.** because such modification would provide a LCD with no difference in the display characteristics among the reflection display mode and the transmission display mode and the compensation layer capability to emit the modulated light which has its orientation direction controlled at selected pixels toward the display surface side.

27. With respect to **claim 7**, **Kubo et al.** (as shown in figures 1, 3 and 7(a)-7(b)) discloses said at least partly reflective film (2) is arranged as an in-cell internal reflector between said front and rear substrate (1 and 2).

28. With respect to **claim 14**, as applied to **claim 11** above, **Akiyama et al.** discloses the limitations as shown in the rejection of **claim 1** above. **Akiyama et al.** does not disclose said at least partly reflective film comprises a transflective film enabling transflective operation of the display device.

Kubo et al. (figures 1, 3 and 7(a)-7(b); in at least column 10, lines 43-51) discloses said at least partly reflective film (2) comprises a transflective film enabling transflective operation of the display device. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light reflecting film of **Akiyama et al.** with the transflective film of **Kubo et al.** because such modification would enhance the brightness and obtain the image display having the high contrast.

29. With respect to **claim 15**, as applied to **claim 14** above, **Akiyama et al.** (figures 3 and 9) discloses a second optical stack supported by the second substrate, comprising one or more optical films (14-16).

30. With respect to **claim 16**, as applied to **claim 15** above, **Akiyama et al.** (figures 3 and 9) discloses said rear optical stack comprises a rear polarizer (14). **Akiyama et al.** does not disclose a compensation film.

Kubo et al. (in at least column 2, lines 18-23, column 7, lines 60-64, figures 1, 3 and 7(a)-7(b)) teaches a compensation film (9). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the rear optical stack of **Akiyama et al.** with the compensation film of **Kubo et al.** because such modification would provide a LCD with no difference in the display characteristics among the reflection display mode and the transmission display mode and the compensation layer capability to emit the modulated light which has its orientation direction controlled at selected pixels toward the display surface side.

31. With respect to **claim 17**, **Kubo et al.** (as shown in figures 1, 3 and 7(a)-7(b)) discloses said at least partly reflective film (2) is supported by the second substrate on a side facing the first substrate (1 and 2).

32. With respect to **claim 20**, **Akiyama et al.** (figures 3 and 9) discloses a normally white super-twist nematic liquid crystal display device for multiplex operation, comprising:

- a first substrate and a second substrate (1 and 2, figure 3);
- a liquid crystal layer (3) disposed between the first and second substrate;
- an at least partly reflective film (15) supported by the second substrate on a side facing away from the first substrate; and
- a first optical stack (12 and 17) supported by the first substrate, comprising a polarizer (12) and an optical light scattering film (17), without a compensation film.

However, **Akiyama et al.** fails to teach a single compensation film supported by the second substrate. **Kubo et al.** (in at least column 2, lines 18-23, column 7, lines 60-64, figures 1, 3 and 7(a)-7(b)) teaches a single compensation film (9) supported by the second substrate (1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the rear optical stack of **Akiyama et al.** with the single compensation film of **Kubo et al.** because such modification would provide a LCD with no difference in the display characteristics among the reflection display mode and the transmission display mode and the compensation layer capability to emit the modulated light which has its orientation direction controlled at selected pixels toward the display surface side.

Conclusion

33. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

34. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. **Akiyama et al.** (U.S. Patent Number 6,577,360) discloses a liquid crystal display device

Art Unit: 2871

having polarizing films disposed on both substrates. Hatanaka et al. (U.S. Patent Number 6,404,471) discloses a reflection liquid crystal display device. Moriwaki et al. (U.S. Patent Number 6,661,483) discloses an LCD device.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lauren Nguyen whose telephone number is (571) 270-1428. The examiner can normally be reached on M-F, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lauren Nguyen

August 7, 2007


ANDREW SCHECHTER
PRIMARY EXAMINER